PHASE CORRECTION FOR A PHASE MODULATED WAVEFORM USING MULTIPLE DATA BITS

ABSTRACT OF THE DISCLOSURE

A circuit and method for correcting phase of a received phase modulated (PM) signal. The method uses k most recently received data bits, which alternate between in-phase I and quadrature Q bits, as an address for a lookup table 60. The lookup table outputs a phase figure 62 derived from a reconstructed waveform. When the most recent k bit is a Q bit, the compliment 68 of the phase figure 62 is calculated to yield a phase correction. Otherwise, the phase figure is the phase correction, which is applied to adjust the phase of a delayed version of the received signal. The delayed, phase adjusted signal is then applied to correct the phase of a received signal. The circuit splits an input PM signal in parallel between a matched filter 54 and a delay block 76, 88. The matched filter output provides the input to a register 58 for storing the k data bits. The delay block holds the PM signal until it is input into a loop phase shifter 78 synchronously with the phase correction. The output of the loop phase filter is input, after filtering, to a primary phase shifter 52 that adjusts phase of a received PM signal.